METHOD AND APPARATUS FOR FILTERING AN OPTICAL BEAM

ABSTRACT

The invention pertains to wavelength-agile optical filters suitable for wavelength-division-multiplexed (WDM) optical communications networks. More particularly, the invention pertains to optical filters with a wavelength reference that can be remotely switched to arbitrarily selectable channels on a standard grid, and to re-configurable optical communications networks employing same. The present invention provides a communication apparatus with a tunable filter which may be used in a wide range of applications including tuning an external cavity laser (ECL), selecting a wavelength for an add/drop multiplexer and providing channel selection and feedback for a wavelength locker. The filter may be utilized as a discrete component or in combination with circulators, wavelength lockers and gain medium. The filter may be implemented in whole or in part as part of a gain medium. The tunable filter exhibits a compact form factor and precise tuning to any selected wavelength of a predetermined set of wavelengths comprising a wavelength grid. The tunable filter may thus be utilized in telecom applications to generate the center wavelengths for any channel on the ITU or other optical grid.